

Amendments to and Listing of the Claims:

Please *amend claims 1-11* and *cancel claims 12-22*, all without prejudice, as shown below in the following listing of all claims ever presented. The following listing of claims replaces all prior versions thereof.

1. **(Currently amended)** An article comprising a substrate having a surface and a tantalum film having a nanocrystalline microstructure as characterized by a broad x-ray diffraction peak at $2\theta=38^\circ$ and continuous electron diffraction rings, wherein the tantalum film is formed directly on the surface of the substrate.
2. **(Currently amended)** The tantalum film article of claim 1, wherein the tantalum is α -tantalum.
3. **(Currently amended)** The tantalum film article of claim 1, having a resistance of 30-50 $\mu\Omega$ cm.
4. **(Currently amended)** The tantalum film article of claim 1, having a net diffusion distance of less than 10 nm after annealing with copper at a temperature between 650°-750° C for 1 hour.
5. **(Withdrawn-Currently amended)** An article comprising a substrate having a surface and a tantalum film having a single crystal microstructure as characterized by an x-ray diffraction peak at $2\theta=55^\circ$ and characteristic (100) spot diffraction pattern, wherein the tantalum film is formed directly on the surface of the substrate.
6. **(Withdrawn-Currently amended)** The tantalum film article of claim 5, wherein the tantalum is α -tantalum.

7. (Withdrawn-Currently amended) The ~~tantalum film~~ article of claim 5, having a resistance of 15-30 $\mu\Omega$ cm.

8. (Withdrawn-Currently amended) The ~~tantalum film~~ article of claim 5, having a net diffusion distance of less than 10 nm after annealing with copper at a temperature between 650°-750° C. for 1 hour.

9. (Withdrawn-Currently amended) An article comprising a substrate having a surface and a ~~A~~ tantalum film having an amorphous microstructure as characterized by a diffuse x-ray diffraction peak at $2\theta=30-35^\circ$ and a diffuse ring in the electron diffraction pattern, wherein the tantalum film is formed directly on the surface of the substrate.

10. (Withdrawn-Currently amended) The ~~tantalum film~~ article of claim 9, having a resistance of 250-275 $\mu\Omega$ cm.

11. (Withdrawn-Currently amended) The ~~tantalum film~~ article of claim 9, having a net diffusion distance of less than 10 nm after annealing with copper at a temperature between 650°-750° C. for 1 hour.

12-22. (Canceled)

23. (Original) A microelectronic device having a silicon substrate, a tantalum film deposited on the silicon substrate and a copper layer disposed on the tantalum film, wherein the tantalum film has an amorphous microstructure.

24. (Original) A microelectronic device having a silicon substrate, a tantalum film deposited on the silicon substrate and a copper layer disposed on the tantalum film, wherein the tantalum film has a nanocrystalline microstructure.

25. (Withdrawn) A microelectronic device having a silicon substrate, a tantalum film deposited on the silicon substrate, and a copper layer disposed on the tantalum film, wherein the tantalum film has a single crystal microstructure.

26. (Withdrawn) The device of claim 25, wherein the device has a buffer layer of TiN or TaN deposited between the silicon substrate and said tantalum film.

27-28. (Cancelled)